



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

DIOPHANTINE ANALYSIS.

126. Proposed by R. A. THOMPSON, M. A., C. E., Engineer Railroad Commission of Texas.

Eight persons wish to play a series of games of progressive duplicate whist. In one evening, 12 boards are played, 4 boards (and return) by one couple against each of the other three couples, the same partners being retained throughout one evening. How many evenings will be required to complete the series, and what is the order of play, it being required that each player shall play with every other player as partner, and that each couple shall play once and but once against every other couple.

Solution by A. H. HOLMES, Brunswick, Maine.

The order of play would be as follows, the first eight letters representing the players:

$$\left. \begin{array}{l} A-B \text{ vs. } C-D \text{ and } E-F \text{ vs. } G-H \\ A-B \text{ vs. } E-F \text{ and } C-D \text{ vs. } G-H \\ A-B \text{ vs. } G-H \text{ and } C-D \text{ vs. } E-F \end{array} \right\} \text{first evening.}$$

The arrangement of couples for the second evening would be: A-C vs. B-D and E-G vs. F-H, alternating as first evening.

Third evening: A-D vs. F-G and B-C vs. E-H.

Fourth evening: A-E vs. B-F and C-G vs. D-H.

Fifth evening: A-F vs. B-G and C-H vs. D-E.

Sixth evening: A-G vs. B-H and C-E vs. D-F.

Seventh evening: A-H vs. C-F and B-E vs. D-G.

It would therefore take seven evenings to *make* the series, or six evenings to *complete* the series.

AVERAGE AND PROBABILITY.

159. Proposed by J. E. SANDERS, Hackney, Ohio.

A box contains n tickets numbered from 1 to n . How many draws, on the average, will it take to draw all the numbers, each ticket being replaced before drawing again? What is the numerical result for $n=2$ and $n=6$?

REMARKS. Mr. Corey and the Proposer insist that the published solution of this problem in the May Number is incorrect. Mr. Sanders gets for $n=2$,

$$p = \frac{1.2}{2} + \frac{1.3}{2^2} + \frac{1.4}{2^3} + \frac{1.5}{2^4} + \dots = 3 + ; \text{ and for } n=3, p = \frac{2.3}{3^2} + \frac{2.4}{3^3} + \frac{14.5}{3^4} + \frac{10.6}{3^5} +$$

$\frac{62.7}{3^6} + \dots$, the sum of the first ten terms of which is 5.1. From a large number of actual trials, he obtained the following results: $n=2, p=2.9$; $n=3, p=5.5$; $n=4, p=8.5$; $n=5, p=12.31$; $n=6, p=15.67$; $n=8, p=22.66$; $n=12, p=41$,—values which are (he observes) approximately equal to $\sqrt{n^3}$.